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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/580,965	05/31/2006	Michel Monnerat	Q94919	2539

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EXAMINER	
MULL, FRED H	

ART UNIT	PAPER NUMBER
3662	

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11/17/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/580,965	MONNERAT, MICHEL	
	Examiner	Art Unit	
	FRED H. MULL	3662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 October 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 September 2008* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

1. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over IDS document Ma in view of any one of {Krasner '734, Krasner '427, and King}.

In regard to claim 1, Ma discloses:

receiving a signal transmitted by a plurality of satellites and corresponding to a sum of signals each transmitted by a satellite and each modulated by a spread spectrum signal characteristic of said satellite (12, Fig. 1; col. 3, lines 11-13),

generating a plurality of local duplicates each of which is the duplicate of a spread spectrum signal characteristic of a satellite (26),

correcting the frequency of each of said local duplicates by compensating the Doppler effect of each of said satellites (34; col. 4, lines 61-63),

summing said plurality of corrected duplicates (26; col. 3, lines 36-39), and

determining the correlation function as a function of time between the sum of said plurality of corrected duplicates and said satellite data signal (30, 32; col. 3, lines 44-50).

Ma fails to disclose using assistance data sent by an assistance server to said mobile device as the source of the Doppler effect correction.

Ma discloses that a Doppler correction is made to the local duplicate (reference code) for initial acquisition (col. 4, lines 61-63), but fails to state the origin of this Doppler correction. It is noted that once acquisition begins, there is a loop process to update the Doppler correction, where the result of the correlation function from 32 is input into 34. But prior to initial acquisition, there is no output from 32, so no initial Doppler correction would be available. A Doppler correction would only be available after the first correlation is completed and there was an output from 32. Since Ma specifically states that "For initial acquisition, a Doppler correction reference code" [local duplicate] is used (col. 4, lines 61-63), a different source is necessary for this initial Doppler correction. Ma fails to disclose this source.

Krasner '734 (col. 3, lines 22-27; col. 5, lines 56-65), Krasner '427 (col. 10, lines 26-32; col. 16, lines 3-10), and King (col. 12, lines 6-11) disclose using Doppler effect correction assistance data sent by an assistance server to a mobile device to allow the user to rapidly compensate for Doppler effect. It would have been obvious to use this known source of Doppler correction as the source for the initial Doppler correction required in Ma. This source allows rapid compensation of Doppler effect, faster than other methods of determining Doppler correction that occur entirely at the mobile device.

In regard to claim 2, Ma further discloses identifying each of the satellites associated with each of the correlation peaks revealed by said correlation function (Fig. 2; col. 3, lines 54-61).

In regard to claim 3, Ma further discloses identifying the synchronization time associated with a correlation peak, determining a plurality of correlations calculated for said synchronization time between each of said corrected duplicates and said satellite data signal, and identifying the satellite associated with said correlation peak as a function of said correlations (Fig. 2; col. 3, lines 54-61).

In regard to claim 4, it would be obvious to identify the satellites by identifying the highest peak first, then the second highest, etc., in order to ensure the highest set of peaks are chosen, rather than just recording everything that might look like a peak, but be a smaller noise source correlation that does not correspond to a satellite lock.

In regard to claim 5, Ma further discloses that after at least one satellite has been identified, each of the remaining satellites is identified, using assistance data sent to said mobile device from an assistance server, said assistance data including the ephemerides of said satellites and the identifier of the cell in which said mobile device is located, by determining the propagation time difference of a signal between said satellites already identified and said mobile terminal, on the one hand, and each of the satellites to be identified and said mobile device, on the other hand (Fig. 2; col. 3, lines 54-61).

In regard to claim 6, Ma further discloses each of said satellites is identified by the following steps: identifying the synchronization time associated with a correlation peak, determining a plurality of correlations calculated for said synchronization time between each of said corrected duplicates and said satellite data signal, and identifying

the satellite associated with said correlation peak as a function of said correlations (Fig. 2; col. 3, lines 54-61).

In regard to claim 7, Ma further discloses:

summing the corrected duplicates (col. 3, lines 36-39),

determining the Fourier transform of said corrected duplicates (28, Fig. 1), determining the Fourier transform of said satellite data signal (22),

multiplying the correct duplicate Fourier transform by the Fourier transform of said satellite data signal (30), and

determining the inverse Fourier transform of the product obtained by the preceding step (32).

Ma fails to disclose taking the Fourier transforms of each of the corrected duplicates prior to summing, instead he performs summation of the corrected duplicates first and then takes the Fourier transform (col. 3, lines 36-39). However, the two processes are mathematically equivalent. That is, individual signals being FFTed followed by a summation is mathematically equivalent to individual signals being summed, and then FFTed. Since these steps were art-recognized equivalents at the time of the invention, one of ordinary skill in the art would have found it obvious to substitute a summation of individually FFTed signals for the FFT of the sum of individual signals. Additionally, this is a simple substitution of one known, equivalent operation for another to perform the same function and to obtain predictable results.

In regard to claim 8, Ma further discloses:

means for generating a plurality of local duplicates each of which is the duplicate of a spread spectrum signal characteristic of a satellite (26, Fig. 1),

means for correcting the frequency of each of said local duplicates by compensating the Doppler effect of each of said satellites (34; col. 4, lines 61-63),

an adder adapted to sum said corrected duplicates (26; col. 3, lines 36-39), and

means for calculating the correlation function as a function of time between each sum of said corrected duplicates and said satellite data signal (30, 32; col. 3, lines 44-50).

Ma fails to disclose using assistance data sent by an assistance server to said mobile device as the source of the Doppler effect correction.

Ma discloses that a Doppler correction is made to the local duplicate (reference code) for initial acquisition (col. 4, lines 61-63), but fails to state the origin of this Doppler correction. It is noted that once acquisition begins, there is a loop process to update the Doppler correction, where the result of the correlation function from 32 is input into 34. But prior to initial acquisition, there is no output from 32, so no initial Doppler correction would be available. A Doppler correction would only be available after the first correlation is completed and there was an output from 32. Since Ma specifically states that "For initial acquisition, a Doppler correction reference code" [local duplicate] is used (col. 4, lines 61-63), a different source is necessary for this initial Doppler correction. Ma fails to disclose this source.

Krasner '734 (col. 3, lines 22-27; col. 5, lines 56-65), Krasner '427 (col. 10, lines 26-32; col. 16, lines 3-10), and King (col. 12, lines 6-11) disclose using Doppler effect

correction assistance data sent by an assistance server to a mobile device to allow the user to rapidly compensate for Doppler effect. It would have been obvious to use this known source of Doppler correction as the source for the initial Doppler correction required in Ma. This source allows rapid compensation of Doppler effect, faster than other methods of determining Doppler correction that occur entirely at the mobile device.

In regard to claim 9, Ma further discloses a mobile device incorporating an RNSS satellite navigation receiver according to claim 8 (10, Fig. 1; col. 1, line 61 to col. 2, line 20).

Response to Arguments

2. Applicant's arguments on p. 6, with respect to drawing objection(s), have been fully considered and are persuasive. The objections have been withdrawn.

3. Applicant's arguments on p. 6, with respect to various 35 USC 112 rejection(s), have been fully considered and are persuasive. The rejection(s) have been withdrawn.

4. Applicant's arguments on p. 6-8, with respect to the rejection(s) over Ma in view of any one of {Krasner '734, Krasner '427, and King} have been fully considered but they are not persuasive.

Applicant first argues that Krasner '734, Krasner '427, and King do not disclose that Doppler Effect compensation is performed at a GPS receiver or mobile unit as in the claimed method.

Applicant cites the preamble as the portion of the claim reciting this limitation. However, a preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). The examiner notes that, with the latest amendment, reference back to the preamble from the body of the claim has been removed from the claim.

Nonetheless, Krasner '734, Krasner '427, and King do disclose Doppler Effect compensation at a GPS receiver or mobile unit. Specifically, applicant states "Krasner '427 clarifies in col. 16, lines 6-10 that Doppler Effect corrections information (other than satellite ephemeris data) is received at the mobile unit, which means that the Doppler Effect correction is not performed at the mobile unit." (p. 7, 2nd ¶). This statement is false. Doppler Effect correction takes place in the mobile by applying the received corrections to the local duplicates. In order words, you start with uncorrected duplicates, then you perform a correction process, then you have corrected duplicates. The correction process uses the Doppler Effect corrections from the assistance server, but the actual correction to the duplicates is done at the mobile.

Applicant then argues that one of ordinary skill in the art would not combine the references because the combination would be unsatisfactory for its intended purpose (p. 7, final ¶ to p. 8, 2nd ¶). Applicant states: "This is particularly so because Ma's GPS

device applies Doppler compensation not only to the correlation function output from the FFT^{-1} 32, which is based on the product (at the multiplier 30) of the reference signal (allegedly corresponding to the corrected local duplicates of the claim) and the RF signal (allegedly corresponding to the satellite data signal of the claim)." However, due to the grammatical structure of the sentence, it is unclear what, exactly, applicant is arguing. Normally, when one writes "A applies not only to B", one then expects to read "but also to C". However, the next phrase "which is based on the product", appears to modify the correlation function. Then "the reference signal" and "the RF signal" are the things forming the product, and thus modify the product. There is no "but also to ..." portion to complete the sentence.

If applicant is trying to argue that Ma applies a Doppler correction to both the reference signal and the RF signals, this is false. The RF signals experience a Doppler shift by the physical process of emission, transmission between the emitter (GPS transmitter) and the receiver, and reception by the receiver. Thus, the reference signal needs to be compensated by the same value of Doppler shift in order to be able to be correlated with the RF signal. This is what the Doppler correction process of Ma does, it applies the Doppler compensation of 34, Fig. 1 to the reference signal of 26 so that it can be correlated with the already (naturally) Doppler compensated RF signal. Krasner '734, Krasner '427, and King provide Doppler corrections to be used to correct reference signals in GPS receivers. Thus there is no double Doppler correction and no reason to think the invention has been modified to be unsatisfactory for its intended

purpose. If the examiner's interpretation of applicant's argument is incorrect, applicant is encouraged to clarify his argument.

It is noted that the rejection of claim 4 has been modified in response to applicants arguments to show that the missing feature would have been obvious.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to FRED H. MULL whose telephone number is (571)272-6975. The examiner can normally be reached on Monday through Friday from approximately 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas H. Tarcza can be reached on 571-272-6979. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Fred H. Mull
Examiner
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/FHM/
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Supervisory Patent Examiner, Art Unit 3662